



SCIENCE NEWS-LETTER

The Weekly Summary of Current Science
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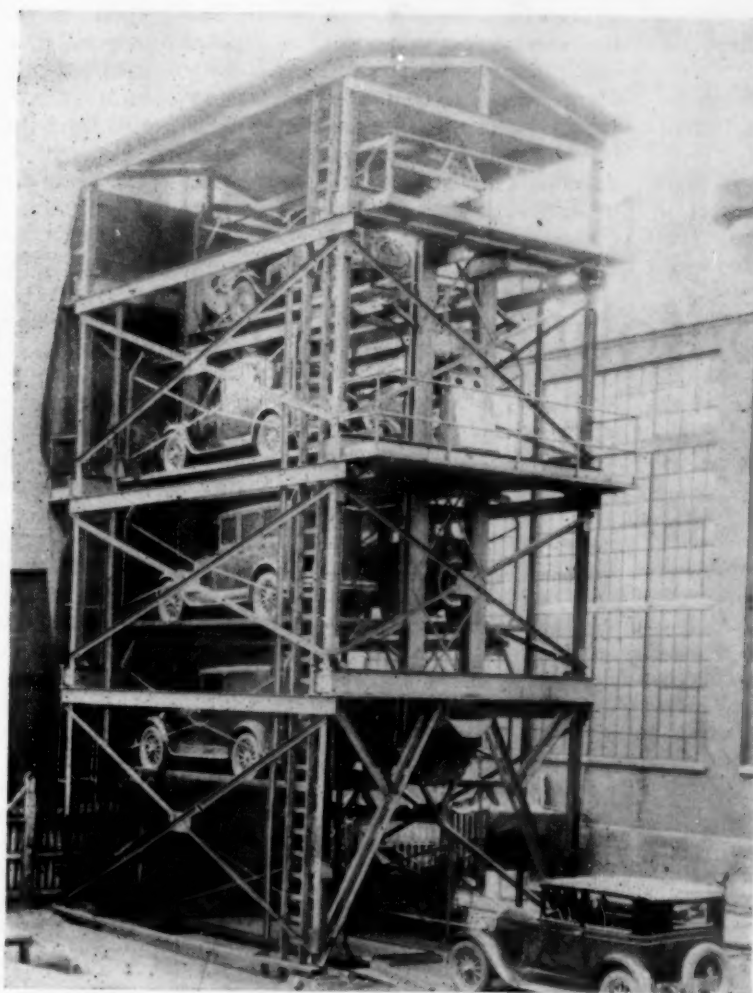


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October 19, 1929



PARKING SPACE "GOES SKYSCRAPER"

New Device Makes Many-Storied Storage Possible

(See page 234)

Vol. XVI

No. 445

Terrace May be Tomb of Mayan Kings

The important discovery of a carved stone terrace in the ruined Mayan city of Chichen Itza, which may prove to be the long-sought tomb of the rulers of one of America's greatest prehistoric cities, has just been announced by José Reygadas, director of Mexican archaeology.

Heavy tropical rains stripped the covering of earth from one corner of the buried structure, and Martínez Canton, inspector of Mexican archaeology, was the first to discover the stones which gave a clue to the new ruin. The terrace has been completely unearthed from its mantle of weeds and earth, except for a small temple and one stairway, Director Reygadas reports.

When the archaeological season begins in Yucatan at the end of December, Mexican archaeologists will probe the newly discovered terrace to learn whether it will give up the secret of the ancient kings of Chichen Itza. This greatest of known Mayan cities

is said to have had a population of several hundred thousand inhabitants in its prime and its existence lasted through many centuries. Yet the only record of a tomb of any great Mayan personage was the discovery of remains in one of the ancient buildings, by Edward H. Thompson, once American consul in Yucatan.

If the terrace is a royal tomb like the pyramids of Egypt, as has been suggested, it is appropriately decorated, for bands and panels in the sloping walls are decorated with rows of carved and painted stone skulls. The sloping, panelled walls are pronounced identical in style with the structures found in the great Toltec capital city Teotihuacan, which lies thirty miles from Mexico City. Hence, the new found terrace was apparently built or at least remodeled by Mexican Toltec tribes who established themselves in the Mayan city of Chichen Itza, in Yucatan, during the last troubled centuries of the great Mayan Empire. This would

date the battered structure in its present appearance at about 1200 to 1500 A. D. Indians of tropical America frequently overbuilt or remodeled important edifices, and the tomb, if it proves to be such, may be far older than this.

Chichen Itza, the holy city of the Mayas, contains the ruins of many stone temples of great beauty, and also elaborately decorated buildings which are believed to be the homes of rulers and priests. But whether the ruling class was buried with the pomp which attended them in life has never been known. The heat and dampness of the climate are not conducive to preservation of burials. The new stone structure stands in a prominent location in the plaza between the most sacred of the temples, El Castillo, and the Temple of the Tigers.

Present theories as to the use of the stone terrace will be probed when explorations are continued during the coming season.

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Automobile Parking Machine

Hailed as a possible solution of the serious automobile parking problem on busy city streets, engineers of the Westinghouse Electric and Manufacturing Company recently exhibited an unusual and unique automobile parking machine which they have just developed. It is shown on our cover.

Entering this new type of storage garage, a motorist can drive his car onto a platform, pull a lever, obtain a check and the car is automatically whisked upward out of sight. The device immediately places another empty platform at ground level ready for another car.

When ready to leave, the motorist can push a button corresponding to his check, and his car is delivered to him at ground level almost immediately, without any of the ordinary vexatious garage delays.

This new automobile parking machine occupies a ground space equal to that of only a small private double garage, and according to H. D. James, the engineer who had charge of the development, can be built for almost

any capacity into old or new buildings, or can be set up on small vacant lots. Several bunched together would constitute a big ultra-modern storage garage.

The machine consists of two endless chains passing over wheels at the top and bottom. Platforms are suspended between these chains. Each platform provides space for one automobile. The housing for the machine is unique because it has no floors. The automobile remains parked on the machine until called for.

An important feature of the new device is that it can be equipped to operate by placing a coin in a slot, thereby doing away with the necessity for attendants. Several machines could be connected by telephone to a central office, and could be quickly serviced from the one point.

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Maya Cities Found by Lindbergh

In five days of flying over unmapped areas of Mexico, Guatemala, and British Honduras, Col. and Mrs. Charles Lindbergh and Carnegie Institution of Washington scientists have carried on archaeological reconnaissance that, if it could be done on the ground, would require eight years of mule-back travel. Using a large amphibian in which Col. Lindbergh had been pioneering the new international routes of the Pan-American Airways, many miles of bush and dense jungle were searched from the air for signs of ruins of Maya cities, hitherto unknown to science.

The four ruined Maya cities discovered give a better conception of the line of growth of the ancient Maya civilization.

They lie in a line stretching northeastward from the Old Empire region of the Maya located largely in what is now the state of Guatemala, where the civilization emerged about the time of Christ. The newly found ruins connect this older area with the New Empire region, on the north end of the Yucatan peninsula. Chichen Itza is the outstanding example of this New Empire Culture.

Flying over unmapped dense tropical jungles, the Lindbergh party sighted three ruined cities definitely determined to be "new." A fourth city, one of the largest found, may be a new discovery, but it may prove to be one seen by Dr. Thomas Gann some years ago in the vicinity of Lake Bacalar.

Many months and perhaps years will be required to investigate and explore the cities located from the air. Many weeks of hard travel by land will be necessary to place land parties at the ruins. But when their broken temples are rescued from the enveloping vegetation there will be available a better idea of the spread of the Maya, who more than fifteen centuries ago rose from primitive simplicity to a complex state with highly developed religion, government and monumental architecture. How and when the center of Maya culture shifted from the Old Empire region to the New Empire has been one of the unanswered questions. The connecting cities now found will probably supply the answer.

Nearly as exciting to archaeologists as finding new ruins is the fact that no cities were found in the area of the Mexican state of Campeche which was surveyed on the second day's flight from Merida to southward. Coupled with the discovery of the ruined cities farther to the east, the absence of Maya settlement sites in the western part of the Yucatan peninsula is significant in explaining the spread of the Maya civilization.

The four discovered ruins are located in flat country. From the air the raised temple mounds could be seen twenty miles away in some cases. But giant trees and dense vegetation rise about a hundred and fifty feet to shroud the glistening white stones with which time has dealt severely.

Only by flying low over the area could the central temples of the cities be seen and studied from the speeding airplane.

The first ruined city, seen on the first day's flight, is located in the southeast corner of the state of Campeche, some fifty miles from the Guatemalan boundary line. Situated in the heart of uninhabited jungles, far from lakes of any kind, it will present a difficult objective to land parties.

Of the three cities discovered in Quintana Roo during the most fruitful fourth day's flight, two are located sufficiently near lakes to allow early exploration by parties transported by air to these lakes. The city near Lake Bacalar is probably more extended in area than the others. The last city discovered and the one nearest the coastal ruins of Tulum is the least accessible of the three due to the absence near it of water on which an airplane might land.

Dr. A. V. Kidder, director of the Carnegie Institution's archaeological work, who flew on the last three days, was disappointed in not being able to see from the air traces of great stone highways connecting Maya cities.

The flights over Coba on the fourth and fifth days of the joint Carnegie Institution and Pan American Airways explorations were of historical interest because the city has been seen by white men (*Turn to next page*)

Telegrams From Lindbergh Plane

Typical excerpts from the radio messages announcing the discovery of Maya cities by the joint expedition of the Carnegie Institution and the Pan American Airways. These dispatches, written by W. I. Van Dusen, Pan American Airways official, were radioed from the Lindbergh airplane direct to the Pan American International Airport at Miami, Florida, and relayed by land wire to Science Service.

Oct. 9—Took off from Belize 11:35 A. M. Today's flight has been projected over a general course north and slightly inland from Pan American Airline to South America that Col. Lindbergh blazed last February.

Several definite ruins have been located within a few miles of his line, and Col. Lindbergh will devote more of today's flying to the search for unknown land inland to Quintana Roo.

Noon—Passing city of Orangewalk printed in large letters on the map; only little cluster of native huts in reality. Savanna plentiful through here, in which Indian burial grounds can be seen occasionally. We are well inland. The Colonel amazes the scientists by his accurate and constant knowledge of true position. Thirty-five minutes from Belize have covered four days' distance by mule, the only surface transportation.

12:30 P. M.—Penetrating into vir-

gin jungles. Col. Lindbergh sighted the first indication of ruins silhouetted against the skyline. We circled sharply several times and definite mounds set about a triangular plot were found. Intense excitement was experienced by party at this first white man's view of lost Maya city. Too cloudy for pictures, but position carefully mapped.

12:45 P. M.—Ten minutes after finding first Maya city, Mrs. Lindbergh, whose keen eyes have been sharpened in past three days sighted a bit of white wall glistening above deep green brush. Further explorations brought out three more towns. Dr. Kidder (*Turn to next page*)

Color Light Symphonies

Colored light can be made to sway, blend and sweep over displays, theaters, or buildings by a new control mechanism just perfected, J. L. Stair, Chicago electrical engineer, announced to the Illuminating Engineering Society.

Like a piano player, the color combinations are controlled automatically by a perforated paper roll fed into the machine.

"The dimming of the circuits is accomplished without flicker, and changes in color may be made exactly in a predetermined order," Mr. Stair said. "The fact that the control is based upon electro-pneumatics gives the opportunity for exact, quiet control, practically as subtle as that to be found in the pipe organ.

"As a perforated paper roll passes the openings in a tracker bar, the functions of turning on and off circuits and the operation of the dimmers are automatically performed. The nature of the color combinations may be predetermined and transcribed to the paper roll.

"The machine has great flexibility, inasmuch as all circuits are in no way related. The operation of the dimmer is independent of the electrical circuits, enabling any combination to be pre-set. Further flexibility is obtained by various speed controls, and the use of manual operation by means of a console keyboard."

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Russians Dig at Samarkand

The ancient history of Samarkand, famed city destroyed by the Mongol conqueror Genghis Khan in 1220 A. D., is being dug out of the earth by a Russian archaeological expedition. The present season's work has been completed and nothing more can be accomplished until next spring.

Clay utensils bearing a strong resemblance to Roman vases have been unearthed in the lowest levels of earth reached by the spade. These raise the question of contact between Rome and this eastern center. The finds demonstrate that the city had its origin as far back as the second century. Well preserved houses from a later period, containing coins, lamps, and household utensils, have been excavated. Art panels and reliefs of considerable beauty have been recovered and are now in the Museum of Samarkand.

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Maya Cities Found by Lindbergh—Continued

on only two occasions before this time. In 1926 Dr. Kidder and a companion, J. Eric Thompson, now of the Field Museum, visited the city, and not until last February when Col. Lindbergh located it during a Pan-American Airways trail-blazing flight was it seen again by a white man.

Air travel will become a routine part of the Carnegie Institution's archaeological work in the Maya region as soon as funds can be secured for a light amphibian airplane and equipment. Dr. Kidder indicated on his return to Washington. With the use of Pan American Airways bases at Cozumel Island and Belize, a two-year program of detailed aerial exploration could be carried out for about \$50,000. Col. Lindbergh will act as an advisor to the archaeologists

on the aeronautical aspects of the work.

Landings made on inland lakes and along the coast during the flights demonstrated how the airplane could be used in Middle America to transport archaeologists over distances that would require many days of difficult land travel.

Dr. Oliver Ricketson, Carnegie Institution archaeologist, participated in the flights of the first three days and Dr. Kidder was in the party the last three days. Other members of the party besides the Lindberghs were W. I. Van Dusen, Pan-American Airways official; Charles Lorber, co-pilot, and William Ehmer, radio operator. The flights took place October 6, 7, 8, 9, and 10.

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Telegrams from Lindbergh Plane—Continued

believes this is probably center of some ancient Maya city and both first and second ruins discovered may be part of same city where Mayas neared height of their amazing era which flourished more than thousand years ago.

1:15 P. M.—Northbound again now over trackless bush. Great highway elevated and built out of blocks of solid stone may still lie under the 150 feet of dense jungle below.

1:30 P. M.—Col. Lindbergh now discovered third Maya city to be credited to expedition today. As in previous cases it has sloped hills from highest of which masonry of Mayas shows above jungle and it is an almost perfect square. Santa Cruz Indians below take to cover at sight of the plane. The type of vegetation is changing fast. Numbers of small temples and dwelling mounds are seen to the north.

2:15 P. M.—The crumbling walls of a majestic Maya temple pyramid estimated at 60 to 70 feet in height marked the fourth ancient city found by Col. Lindbergh within past two hours. Dr. Kidder described it as a perfect type of Maya empire edifice. Its original glory was the central part of a flourishing city. The mound was sighted by Col. Lindbergh fully 22 miles away when it was seen on

the horizon. There are no signs of modern human habitation. The ruins are thirty miles north of Santa Cruz.

5:45 P. M.—That section of Quintana Roo indicated by blank on maps because it has never been mapped is likely filled with small mounds, indicating the presence of minor temples, private dwellings and other small buildings. Coba, one of the largest of the ruins, discovered some time ago was re-discovered about 2:45 P. M. Ten minutes later turning toward coast, we sighted Tulum, one of the first coastal ruins to be discovered. It made a beautiful sight from the air with its 25 buildings strung along the seacoast, and grouped about a great square. Col. Lindbergh circled the site three times so that pictures might be taken and then decided to land to allow the party to explore the site at first hand. The rubber boat was inflated and the entire party went ashore. Col. Lindbergh visited every spot on site, showing considerable interest, and Dr. Kidder told history. The tide started coming in during the two and one-half hours stay ashore, and everyone had considerable amusement getting back to plane. Everyone but Mrs. Lindbergh got well soaked, and Dr. Kidder got first rowing lesson on his turn as captain of the Tulum ferry company. We took off for Cozumel Island at 5:34 P. M.

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Did Earliest Americans Hunt Sloth?

By FRANK THONE

Did the earliest American hunt the ground sloth and the cave bear? Did they have a part in the extermination of the wild camels that once roamed the Southwest? Were there human beings on this continent twenty thousand, forty thousand, a hundred thousand years ago, instead of the mere eight or ten thousand now allowed by many anthropologists?

These and a score of like questions will be agitating American students of ancient man during the coming months, as the result of excavations now going on in the bottom of a cave in southwestern New Mexico. Fragments of the bones of two skulls and other human bones have come out of the sandy earth, together with a great quantity of fossil remains of animal species like the cave bear, the extinct American camel, the huge ground sloth, and the wild horse that flourished on the plains and plateaus of the West and had gone over the road of the mastodon and the saber-tooth tiger long before the Spanish conquistadores restocked the ranges with the ancestors of the modern broncho. The human bones were so intimately interburied with those of the animals that the possibility of their having been buried here at a later date seems to be ruled out of court; yet these animals have always been checked off by geologists as extinct since the end of the Great Ice Age—and that was a hundred thousand years ago.

Did the owners of these skulls wander into this cave to die a thousand centuries in the past, or were there still survivors of the strange Pleistocene fauna left on earth until late-coming man put in his leisurely appearance, perhaps only ten thousand years ago? That is the dilemma now confronting the scientists, and that is the reason why the busy spades of workers from the Los Angeles Museum are digging into the bottom of Conkling's Cavern like so many living question-marks. The answers to these questioning thrusts come up day by day—more pieces of bone, a few of them human, most of them of mammals and birds, some living and some extinct. The cases and study tables of the museum in Los Angeles are filling with fossils, faster than paleontologists, the specialists who delight in ancient bones, can read their



DID THE FIRST AMERICANS hunt this beast? Ground sloth, Nothrotherium, tentatively restored by Prof. R. S. Lull of Yale from skeleton found near El Paso. Bones of similar animals were found in Conkling Cavern

riddles. When these long runes are read at last, which may be months hence, or even years, the full significance of the two broken skulls will be made known. In the meantime, the story can be told so far as it is known to date, while it is still news.

Conkling's Cavern, this newest of the mines of science, where bones are more to be valued than gold, and odd teeth are priced above rubies, has achieved the dignity of a name of its own only recently. Before that it was merely one of the innumerable nameless holes in the ground in the limestone base of Bishop's Cap Peak, in southwestern New Mexico. Now, in recognition of the inspired amateur scientist, Roscoe P. Conkling of El Paso, whose initiative and enterprise resulted in opening up this new fossil Golconda, the place has been given his name.

The romantic story of the opening up of Conkling's Cavern is well told by Wm. Alanson Bryan, director of the Los Angeles Museum. Dr. Bryan writes: "Mr. Conkling, who for many years has been connected with the American Smelting and Refining Company, has had as a form of relaxation and recreation a very lively interest in the field study of archaeology, coupled with a general interest in natural history which in the course of his travels in connection with mining operations in remote fields has led him to examine and to study scores of burial and bone caves in America and in various foreign lands.

"In following this interesting avocation, he some time ago arranged with Nicanor Mestes, Richard Chapman and José M. and Lorenzo Benavidas to locate promising caves within reach of El Paso for him to explore and study at leisure. Their acquaintance from youth with the mountains in the country surrounding El Paso and the first-hand knowledge of a local tradition to the effect that Spanish gold had long ago been buried in the small dark cave on Bishop's Cap Peak prompted them, under Mr. Conkling's encouragement, to go there and dig—not for bones or Indian relics, but for buried treasure—with the happy result that in this indirect manner what appears to be an exceedingly important and convincing discovery in the prehistory of America has been made.

"The cave, which is located in carboniferous limestone, opened on the easterly flank of the mountain through a jagged orifice about three by four feet (since enlarged) which led into a dark stone cavern formed by water erosion. The floor was about eight feet below the mouth and was of wind-blown sand some twenty feet or more in irregular diameter. Aside from a few unsuccessful attempts to use the cave as a storm shelter by an occasional herder, the place had never been a human habitation. A previous unsuccessful attempt to locate treasure in this cavern was made about forty years ago by men still living, who since the discovery have been induced to revisit it.

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Did Early Americans Hunt Sloth?—Continued

"The work of treasure hunting proceeded without much show of success until at a depth of approximately ten feet below the floor bones were unexpectedly discovered. These were thought by the excavators to be perhaps the bones of a mule that might have belonged to the owners of the supposed buried treasure. As a result the work of excavation went feverishly on, until a fragment of a human skull was exhumed! These bones were brought to the attention of Mr. Conkling, who at once recognized the possible importance of such a find under such circumstances. He then supervised the further exploration of the cavern:

"Early in the work he sent photographs and drawings of his finds to the Los Angeles Museum for verification, with the result that Dr. Chester Stock, curator of the department of vertebrate paleontology, identified certain of the bones uncovered under ten feet of sandy loess deposits as the well-preserved phalanges of a ground sloth; and, as these were found adjacent to and at the same depth as the human skull cap referred to, all excavations since have been made with a view to preserving all available data growing out of the association of the material uncovered, as well as the material itself.

"The cavern during the past four months has been carefully excavated to a depth of more than thirty feet without encountering rock bottom, the inference being that it extends much deeper. Except for a slight amount of surface material, and material doubtless falling down from the roof, the entire space is uniformly filled with very fine reddish wind-blown sand which exhibits an ill-defined horizontal laminated bedding, indicating the nature of its slow accumulation.

"Eight feet below the occurrence of the skull, i. e., twenty feet below the surface, a hard, compact lens from two to four inches in thickness was encountered. This, while composed of the same material as that which filled the cavern, differed in that it was evidently water laid. Apparently it had settled out of water accumulated in the cavern, as a result perhaps of a cloudburst. The value of this circumstance, however, lies in the fact that it formed a definite undisturbed horizontal diaphragm completely flooring up the cave. The



ROScoe P. CONKLING, who opened up America's latest and most sensational find of ancient man

significance of this will be appreciated when it is understood that at about eighteen inches below this floor and more than twenty-one feet below the surface floor of the cavern additional human skull fragments were found!

"From the twelve-foot level where the first skull was found to the bottom of the excavation, i. e., for a depth of eighteen feet, bones of extinct horse, cave-bear, camel and sloth have been excavated in such numbers as to fill five large table type museum exhibition cases, while a bushel or more of small animal and bird bones have been recovered. Practically the complete skeleton of a ground sloth was found in place midway down between the occurrence of the two skull finds, which were almost ten feet apart. The last bones recovered from the bottom of the excavations were the limb bones of a very large camel!

"From the foregoing it would seem obvious that we have here the undisturbed occurrence of human remains in direct association with a number of animals regarded as extinct since the Pleistocene period, and all deposited in such a manner as to preclude even the suggestion of their later intrusive burial. It is, therefore, believed that Conkling's Cavern has been a den and trap for wild animals through countless centuries and is a find which fortunately settles conclusively the moot question as to

whether man and the sloth, the camel and the cave-bear, for example, were coexistent in America.

"At the invitation of Mr. Conkling, I visited the cavern during the latter part of April. After very careful study of the occurrence and having had the exhilarating satisfaction of assisting in the removal of the pelvic and lumbar portion of the sloth specimen referred to and seeing its relation to the human remains, I do not hesitate to pronounce the find as probably the most important prehistory discovery ever made in America."

The find at Conkling Cavern promises to be a classic in the study of prehistoric man on this continent, because up until the present most human relics of apparently high antiquity in America have been unearthed under circumstances that left room for argument by the skeptical. As a matter of fact, America has not yielded a tenth or even a twentieth as many prehistoric human remains as have been found in Europe. We have nothing as yet to compare with the wonderful pictured caves of southern France and northern Spain, where the Cro-Magnon race once dwelt, nor anything to match the many burials of the beetle-browed, heavy-jawed Neanderthals. We may be said to stand now about where Europe stood in 1856, when the skull of the first Neanderthal man was found in the valley of the Düssel.

Not quite, however. There have been other finds of prehistoric man in America within recent years, which have proved disturbing to the earlier concept of a western hemisphere with no human inhabitants until within the last few scores of centuries.

The Southwest has yielded a large share of such discoveries as have been made. The most telling of these have not been of the bones of the prehistoric Americans themselves, but of flint arrow points, undoubtedly the handiwork of man, found associated with the bones of ancient animals, sometimes deeply buried under deposits of gravel.

A little over two years ago three such discoveries were made near the towns of Frederick, Okla., Folsom, N. M., and Colorado, Texas. These discoveries were investigated by J. D. Figgins and Harold Cook, of the Colorado Museum of Natural History in Denver. Along Wolf Creek, near the town of (Turn to next page)

New Institute for Eye Problems

A great step forward in the study and treatment in America of diseases of the eye is marked by the dedication of the Wilmer Institute of the Johns Hopkins University and Hospital. Before the establishment of this institute, such opportunities in our country were far behind those of European countries. Individual men specializing in the subject were doing splendid work at various places, but no one center existed.

The new institute was founded and built by contributions from former patients and friends of Dr. William Holland Wilmer, one of the country's leading eye specialists, who is the head of the institute which bears his name. The location of the institute

is of especial advantage because the means for caring for patients and the general medical facilities of a great university hospital are available.

The unusual equipment and construction of the institute is the result of much thought and study on the part of Dr. Wilmer who spent two years in Europe visiting various ophthalmological centers before the institute was built.

A special camera has been devised in the research department to record pictorially operations on the eye. This is of immense educational value. Only a very few persons can observe closely the details of a surgical operation with safety to the patient. This is particularly true of delicate operations

on the eye. The new camera will give future surgeons an opportunity for observation of every detail, which is a vital part of their training.

Over 50,000 persons in the United States today have defects of vision so great that they cannot engage in pursuits requiring vision. Many thousands more are seriously hampered in health, happiness and earning power by poor eyesight. For these people as individuals and for the communities in which they live, the Wilmer Institute has tremendous significance. Research now being carried on at it is concerned with glaucoma, cataract, the effects on the eye of aviation, and many other problems of vital importance to humanity.

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Did Early Americans Hunt Sloth?—Continued

Colorado, Texas, flood waters exposed the bones of an extinct species of bison, and while large blocks of earth in which they were embedded were being removed for transportation to the museum, three arrowheads, quite unlike those in any known collections, were found beneath a nearly complete skeleton.

At Folsom, N. M., fossil bones were discovered at the extraordinary altitude of 7,000 feet, and among the fossil bones were found two arrowheads similar to the Colorado specimens. The bones were identified as those of three hitherto unknown species of bison and an ancient deer-like animal.

In a gravel pit at Frederick, Okla., there were three distinct layers of deposits, which yielded, besides bones of animals, two arrow-heads and seven stones believed to be metates, or primitive grinding implements. Eight feet above the point at which the uppermost of the stones occurred, there were found remains of the mammoth, including numerous teeth.

Dr. O. P. Hay, of the U. S. National Museum, visited the Frederick gravel pits and came back convinced that they offered real evidence for the contemporaneous existence on the American continent of some race of man and of animal species now extinct.

But the Southwest is not alone as a possible dwelling-place of prehistoric man in America. Florida of the

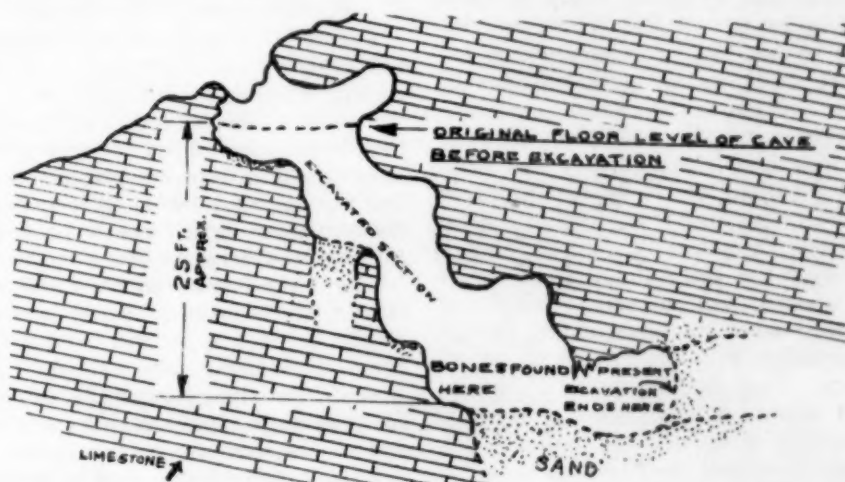


DIAGRAM OF CONKLING'S CAVERN, where human bones were found associated with remains of ground sloth and an extinct species of camel

Stone Age must have had its adherents as an ideal home, for since 1925 human relics have been coming to light from beneath its sandy soil. The most notable discovery was made in that year at Melbourne, where a joint expedition of the U. S. National Museum and Amherst College unearthed a crushed human skull from the same earth stratum that contained bones of mammoth, mastodon, and a huge scaled animal like a giant armadillo. Stone arrowheads, like corroborating documents, were found at the same level. Last spring C. P. Singleton, a Harvard zoologist, visited Melbourne and found a stone arrow or spear point directly underneath the bones of a mastodon, and at the same

time Dr. J. W. Gidley of the U. S. National Museum found a large stone implement of the type known as a turtle-back flaker.

To these and other evidences of the antiquity of man in America, the Conkling Cavern finds lend new weight and added authority. Though the cavern is closed to the general public during the activities of excavation, it is open to qualified scientists. And the really interesting part of it, the bones themselves, are on public display in the Los Angeles Museum, where both scientists and the laity can see for themselves the newest pages that have been opened in the book of the antiquity of man in America.

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NATURE RAMBLINGS

By FRANK THONE



Praying Mantis

The coming of frost always brings migrations of praying mantises. All summer through they abide in the woods, seldom seen because of their leaf-and-stick camouflage; but when chill weather makes their cupboard bare of insects to eat they become restless and fly about, many of them falling in city streets where startled citizens see them. Sometimes newspaper reporters, with the columns of their Monday morning editions hungry for copy, will play them up as something extraordinary and rare. But mantises are likely to happen in numbers on any frosty fall morning.

These insects, which are distributed all over the world in a whole series of species, are unfailing objects of interest when their fascinating though sanguinary lives are related by naturalists. They are the tigers of the insect world, stealing upon their prey, snatching it up in their hypocritically pious forelegs, and eating it alive. Henri Fabre has made a shuddery masterpiece of the story of the mantis' courtship, at the culmination of which the luckless male becomes his Amazon spouse's bridal feast. She begins to eat her mate even while he still clasps her in the marital embrace!

The hunger of these insects must be simply insatiable. A captured mantis will resent handling as any insect will; but hold her carefully by the wings and present some other insect—even another mantis—to her beak and she will promptly begin to gnaw, forgetting all about her captivity. All round, the mantis, though interesting and probably of benefit as a destroyer of pests, is really not the kind of insect one would characterize as "nice".

Science News-Letter, October 19, 1929

Carp Eat Other Fish Out

Carp get the better of other fish whose waters they invade, literally by eating them out of house and home. This has been disclosed by the drainage of a small, carp-infested lake in southern Wisconsin, which was studied by Dr. Alvin R. Cahn of the University of Illinois. His results are reported in *Ecology*.

As the waters went down in the lake, all the fish were captured and counted. Out of a total of 6,006 fish, 5,891 were carp. More desirable species, like perch, black bass and pike, were notable for their absence or scarcity. By way of contrast, a similar total taken from a lake containing no carp had a good representation of several desirable game and food species.

The most notable difference between the two lakes, Dr. Cahn states,

Red Clover Evolves

The definite strains of short headed red clover blossoms which are becoming established are the result of the gradual disappearance of bumble bees in sections of the country which have become intensely agricultural and the taking over of their task by the shorter-tongued honey bees, according to Harry F. Dietz.

The long nectar tube of the red clover has heretofore made it practically dependent on the bumble bee for fertilization. Bee keepers have looked with longing at the amount of potential honey available in the red clover, but it was impossible to breed a type of honey bee which had a tongue long enough to reach the treasure.

However, as the yield of clover seed lessened each year, a greater per cent of this smaller amount came from the occasional shorter tubed red clover blooms which short-tongued insects had been able to fertilize. As seed from these short-corolla flowers generally produced plants in their turn having the same kind of blossoms, the tendency was to produce a type of blossom which the honey bee can work. Though slow at first, the change has been hastened and the increasing yields of clover seen in the vicinity of prairies seems to indicate that the red clover will eventually turn all its mating problems over to the honey bee.

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was to be seen in the plant population, which of course forms the ultimate food of all fishes. In the carpless lake there was an abundant growth of many kinds of plant life, in the carp-filled water there wasn't a weed. The restless, avid, all-eating mouths of the carp had destroyed every green thing.

The muddy bottom of the lake was entirely covered with little semi-round depressions about a quarter of an inch deep. These had been made by the carp, "mouthing" the mud to get the last traces of anything fit even for a carp to eat. Incidentally, of course, this constant stirring of the bottom effectually prevented the germination of any seed of a water plant that might have fallen into the lake, and also kept the water constantly roiled and muddy.

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Quake Broke Seismograph

The earthquake felt on the island of Hawaii on Sunday, October 6, was so severe that it dismantled the seismograph at the University of Hawaii at Honolulu, according to reports from the earthquake observers there to the U. S. Coast and Geodetic Survey. The epicenter, or point of greatest activity of the quake, was about 250 miles southeast of Honolulu, as shown by data received by Science Service and interpreted by the Coast and Geodetic Survey. The stations sending reports were those of Georgetown University, Washington, D. C.; the University of Virginia; the University of Hawaii, Honolulu; T. H.; the Weather Bureau, Manila, P. I.; the U. S. Coast and Geodetic Survey, Tucson, Ariz.; and the Dominion Observatory, Ottawa, Canada.

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It costs the government four times as much to train a military air pilot as to train a man at West Point or Annapolis.

Confusion resulting from the great variety of traffic signs and signals in use was the cause of more than 2,000 deaths last year, a report indicates.

California's mining history began in January, 1848, when James Marshall discovered gold in a ditch being dug near a sawmill.

Steel Frame and Oil Engines in R-101

The world's largest airship, the R-101, built for service on the England-India air route by British governmental engineers, is a novel craft in structure, material, engines and other details. First of Britain's rigid lighter-than-air craft to take the air since the ships planned or started in wartime, the R-101 in her tests and first long voyages will be watched by aeronautical engineers the world over. The first flight of the R-101 was on October 14, when London was visited.

Although some 50 feet shorter than the world-circling German airship, the Graf Zeppelin, the R-101 is 130 feet in diameter, just 30 feet larger in waist measure than the Graf. Its lifting gas displacement is 5,000,000 cu. ft. as compared with the 3,710,000 cu. ft. of the Graf Zeppelin. The Los Angeles, the German-built airship of the U. S. Navy, is just a million cubic feet capacity smaller than the Graf Zeppelin.

The R-101 is a sister in size to the other British airship, the R-100, now nearly ready for flight. Whereas the R-101 is government-built, the R-100 is the product of the Airship Guarantee Company, a private firm that is building for the government. Slightly fatter and some 55 feet longer than both the R-101 and the R-100 are the two U. S. Navy airships that shortly

will be laid down at Akron, Ohio, and finished several years hence.

Whereas all other airships built, even the R-100, rely on an aluminum alloy, duralumin, as the material for the structural members that form the frame of the airship, the R-101 principal frames are made of stainless steel tubing, looking much like the frame of an ordinary bicycle. Aluminum alloy is used for minor structural members that support gas bags, walkways and cabins.

The whole of the two-deck passenger cabins, with dining, sleeping and recreational accommodations for 100, is contained within the hull in order to reduce the air resistance that would be caused by a car slung below the great cigar-shaped structure. In this construction detail the R-101 anticipates the new U. S. Navy airship designs.

Hydrogen is the lifting gas used in the R-101 since America has a monopoly on the non-inflammable helium gas that holds the Los Angeles aloft. Although hydrogen is highly explosive when mixed with air, and voyagers on the Graf Zeppelin were rigidly prohibited from smoking, the R-101 is equipped with a smoking room that would be a credit to an ocean liner. Special ventilating methods prevent any of the dangerous hydrogen gas, millions of feet of which are above

the smokers' heads, from entering the smoking compartment. The dining room on the R-101 will seat 50 guests. There is a springy floor in the lounge or main cabin that is designed especially for dancing. About the size of a tennis court, the main saloon has a balcony at each end with non-splintering glass observation areas. The sleeping compartments are declared to be more luxurious than those of the ordinary European sleeping car.

For the first time in history a great airship is propelled by heavy oil engines, eliminating the highly inflammable gasoline which is considered quite as dangerous as hydrogen lifting gas. Five Beardmore engines, each developing 600 horsepower, especially designed for the R-101, provide the motive power. These Diesel engines, built for aircraft use, are self-igniting by the heat of fuel compression, and thus sparkplugs and their troubles are eliminated. Since heavy oil injection is used, carburetors are also lacking. Waste heat from the two side engines, which are close to the cabins and saloons, is utilized in heating the quarters of crew and passengers. Fans drive air over a radiator serving both engines and the hot air is circulated in the living quarters.

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Diet Affects Dental Development

The development of teeth, both as to speed of growth and structure, is greatly influenced by diet, studies reported by Drs. E. V. McCollum and Henry Klein of the Johns Hopkins School of Hygiene and Public Health have shown.

Teeth of swine fed on a deficient diet, such as would cause rickets in rats, developed more slowly and were poorer in structure and position than teeth of swine of the same age that had been fed a normal, balanced ration. A remarkable difference in size of teeth and lower jaw bone was found in the animals as a result of the differences of diet.

The food of the low calcium diet was softer and less abrasive to the finger touch than that of the normal and high calcium diets, yet the teeth of animals fed the low calcium diet were ground down almost to the gum

margin. This is further evidence pointing to the faulty structure of the teeth because of the low calcium diet.

Teeth of animals fed the deficient diet not only grew more slowly but were also less calcified as shown by X-ray examination, and there was more malposition of teeth among these animals than among the other two groups.

Of animals fed the normal diet 5 per cent, or about one-twentieth, had malposition of the teeth, and of those fed the high calcium diet a few more, 6 per cent, had this condition. Among animals fed the low calcium diet the condition occurred in 17 per cent, or nearly one-fifth. When the animals were fed for the first year on the deficient diet and for the second year on an adequate diet, the permanent erupted teeth showed a large amount of malocclusion, Dr. Klein found.

Swine were chosen for the investigations because these animals have two sets of teeth, a temporary and a permanent, because they have omnivorous dietary habits, and because they have a comparatively long suckling period for the young. Three types of diet were fed: a normal one; one having a high calcium and low phosphorus content; and one having a low calcium, high phosphorous content. The high calcium diet caused a slower growth of teeth and poorer structure than the normal diet but a growth and structure better than that of animals fed the low calcium diet.

All the comparisons were made on animals of the same age that had been fed these diets from the very beginning, the mothers having been given the diets while the young were suckling.

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High Grade Paper From Wood

High grade bond and permanent record papers, where permanence and durability are essential, have always been made from cotton rag fibers. As a result of an investigation by the U. S. Bureau of Standards, however, it is indicated that certain types of highly purified wood fibers are suitable for conversion into such papers. This will effect considerable saving since the wood fibers are much less expensive than cotton fibers.

Papers carefully prepared from high grade cotton rags have always been used exclusively where permanence extending over hundreds of years was desired. The cotton fiber is the purest form of cellulose found in nature, and cellulose, commonly called alpha cellulose, has a high degree of permanency.

Ordinary wood fibers, on the other hand, have impurities which seriously affect their permanence. By a series of chemical treatments these impurities can be removed, according to the Bureau of Standards, leaving a fiber similar in its chemical composition to

the cotton fiber and having the desired paper-making characteristics.

Tests are being made at the Bureau of Standards of the various types of paper-making wood fibers and of several grades of rag fibers. The tests include purity, strength, and whiteness.

Complete information cannot be obtained by analysis alone. For this reason an accelerated aging test is considered a valuable supplementary test. This is made by heating the paper and finding the degree of deterioration of its physical and chemical properties. This treatment is presumed to simulate the chemical effect of many years of natural aging.

The fibers are baked in dry form at a temperature of 212 degrees Fahrenheit, then they are cooked with steam, and are exposed to intense light rays from a carbon-arc lamp which acts as an artificial sun. After such severe treatment, the fibers are subjected to searching tests to find out how much they have deteriorated both chemically and physically.

Science News-Letter, October 19, 1929

Makes Work for Heart

A meal that is high in protein content, one that contains a large amount of meat, makes more work for the heart, Dr. R. M. Moore, Harvard University physiologist, has found.

In experiments in which the effect of muscular exertion, emotional excitement and temperature were carefully excluded, Dr. Moore found that after a meal of meat the heart rate of the experimental subject was increased by one-fourth or one-half of what it had been while fasting. That is, if the subject's heart had a fasting rate of 80 beats per minute, the meat meal increased it to 100 or 120 beats per minute.

This effect persisted for from 15 to 20 hours, during which time a total of many thousands of extra heart beats was reached. The extra burden of work thrown on the heart by a protein meal, if other factors than the rate remain unchanged, is about equal to the total amount of work done by the heart during three or four hours under fasting conditions. Obviously, Dr. Moore pointed out, it is not possible to give the heart a rest, as is desirable in certain diseases, when a diet high in protein is being followed.

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Urges Nature Study

Increased possibilities of getting enjoyment out of the Sunday afternoon family automobile ride were stressed by Mrs. Thomas A. Edison in a paper prepared for the National Recreation Congress. The wife of the famous inventor declared that her major interest for some years has been to promote play and recreation.

"The automobile is doing much to bring families into closer contact with the outdoors," she pointed out. "We should teach our children, and grown-ups as well, to love the things of nature, to study them with the eagerness of the scientist or the artist, and the automobile trip will become an Open Sesame to many real delights. The children will take an interest in trees and stones and flowers they see along the way. Instead of whining to stop at every roadside stand for a 'hot wienie' or an ice cream cone, they will want to stop to watch the habits of a bird, squirrels, and other animal life, or to see the sunset fading over the hill."

Recreation should not be taken in scattered, intensive doses but should be a part of everyday life, and should serve the purpose of relaxation, Mrs. Edison stated.

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"Viosterol" Now Official

Viosterol is the name now officially approved by the Council on Pharmacy and Chemistry of the American Medical Association for preparations of irradiated ergosterol, the powerful substance that will prevent or cure rickets. Preparations of this substance sold under any other name have not been accepted by the Council as meeting its standards. Irradiated ergosterol is the substance responsible for the vitamin D of cod liver oil.

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Adrenalin Depots May Form Under Skin

Discovery by Dr. A. B. Luckhardt of the University of Chicago and Dr. Theodore Koppányi of Cornell University Medical College, that the powerful drug adrenalin forms depots when injected under the skin has opened the way for a new method of treatment of certain diseases.

Adrenalin has long been used to raise the blood pressure, particularly in cases of shock following severe injuries or operations, and because of its relaxing effect on the bronchial muscles it has been used effectively in treating bronchial asthma. However, to produce the desired effect, the adrenalin had to be injected directly into a vein, and for each attack a fresh injection of adrenalin had to be made.

Drs. Luckhardt and Koppányi have shown in dogs that adrenalin is capable of elevating the blood pressure even if injected beneath the skin, but they have also discovered the conditions under which the blood pressure elevating effect of the adrenalin injected beneath the skin may be elicited. They found that about fifteen minutes after the injection of adrenalin underneath the skin, when the

injected area was gently massaged, there was at once a very considerable and protracted rise in blood pressure.

Deep anesthesia militates against the effective elicitation of this response, and this is the reason why previous investigators failed to get blood pressure rises following adrenalin injection beneath the skin. Drs. Luckhardt and Koppányi have pointed out that adrenalin injected beneath the skin remains there for some time, and it was even possible to produce blood pressure rises from massaging such areas which had been injected twenty-four hours before the massage.

Dr. Koppányi has lately shown that adrenalin injected underneath the skin, with the massage of the injected areas, is just as effective in man as in dogs, and in both cases adrenalin forms a depot underneath the skin, the massage of which results in a blood pressure rise for over twenty-four hours. It was quite obvious that this observation could be applied in the treatment of various diseases in which the administration of adrenalin is desired. There are quite a number of such conditions, the most important of them being the

so-called traumatic shock, which consists of dangerously lowered blood pressure sometimes following major injuries, operations, etc. A New York surgeon, Dr. Howard Lilienthal, has shown that by using the method of Drs. Luckhardt and Koppányi, he could restore a patient suffering from traumatic shock.

Bronchial asthma, hives, and hay fever also respond very readily to adrenalin. Before the method of Drs. Luckhardt and Koppányi was known, it was necessary for each attack of these diseases to be checked by a new injection of adrenalin. The method of massaging the injected areas does away with that very often inconvenient procedure, and during the course of a day or two only one adrenalin injection is necessary, and the patient himself may be instructed to massage with a piece of cotton the injected area and thus get the benefit of the full therapeutic effect of adrenalin. Clinical reports have already substantiated the effect of the massage of the adrenalin-injected areas in these diseases.

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European Pine-Shoot Moth in Florida

The European pine-shoot moth, first reported in the United States fifteen years ago, has been discovered in Florida by Perkins Coville of the United States Forest Service. The insect was identified by August Busck, U. S. National Museum specialist on lepidoptera.

Up to this time the European pine-shoot moth has never been recorded south of Washington, D. C. It was first discovered in Long Island, and later spread to the Middle Atlantic States and through the New England States to Southern Canada. In the North it seems to confine itself in general to the ornamental trees, and for that reason has not been a serious pest. In parts of Europe, however, it is very serious. It is feared that it may prove very harmful should it get firmly established in the South because of the fact that the long growing season may enable the moth to develop four or five generations a year.

The specimen identified by Mr. Busck was found infesting immature

cones taken from a long-leaf pine growing near the Starke, Florida, branch of the Southern Forest Experiment Station. The tree had been used in cross-pollination experiments and removal of pollination bags from the flowers had disclosed the fact that a number of small cones were badly infested.

Mr. Coville describes the larva or caterpillar of the European pine-shoot moth as dark brown, with a deep black head and a black shield on the upper part of the first division of the body behind the head. Allied species are lighter in color. The full-grown larva is two-thirds of an inch in length.

The Department of Agriculture has made the request that every one in a position to do so watch for signs of the insect and its damage and send any material showing symptoms resembling the description of the pine-shoot moth infestation to the Bureau of Entomology of that Department at Washington, D. C., for examination and identification.

Science News-Letter, October 19, 1929

Three Factors for Teeth

To have good teeth that will not decay easily one must eat food that has plentiful amounts of calcium, phosphorus and vitamin D, Mrs. May Mellanby of Sheffield, England, found as a result of feeding experiments with animals and children.

The substances that are necessary for the development of good teeth are also necessary for the development of good healthy bones, Mrs. Mellanby stated in a report to the American Dental Association. In rickets, when the bone development is poor, the same defects appear in the structure of the teeth. Children suffering from rickets also had many decayed teeth, while in children who were not rachitic tooth decay was rare, Mrs. Mellanby observed.

Oatmeal and maize and other cereals and cereal products are good sources of calcium and phosphorus, but unless irradiated they interfere with calcification, because they contain substances antagonistic to vitamin D, the "toxamins" demonstrated by Mrs. Mellanby's husband, Dr. E. Mellanby.

Science News-Letter, October 19, 1929

Piano Tones Like Human Voice

A new type of piano, which is called a revolutionary musical development, has been patented by Dr. John Hays Hammond, Jr.

The invention increases the sonority of the piano, lengthens the vibrations and sustains the capacity and volume of the tone. Often the pianist has desired to influence the tone of the piano after the keys are struck. With the new instrument it is possible to do this and to produce a vibrato tone which so far could only be produced by the human voice or by string instruments.

The new piano looks very much like the usual piano except that the strings are enclosed in a sound-tight casing having two sets of shutters, one above the strings and the other below the sounding board, which are opened and closed by means of a fourth pedal. The shutters act as

reflectors and produce an effect called "acoustic regeneration", sustaining the sound vibrations for a much longer time than is possible in the ordinary piano. Manipulation of the extra pedal removes inflexibility and shortness, the chief drawback of the old piano tone. The tone effects and shading made possible have caused the instrument to be called a "breathing piano".

On this new piano, Lester Donohue, pianist, has given many performances during the last two years. It is particularly effective for modern compositions such as by Debussy and Scriabine written in impressionistic style and demanding varying nuances of sound.

Dr. John Hays Hammond, Jr., has received about 400 patents, many in the radio field, and he is also an excellent violinist.

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Urges Dental Institute

American dentists are preeminent in the practice of mechanical dentistry, but they have allowed abstract dental research to lag far behind their other achievements, Dr. Ales Hrdlicka of the Smithsonian Institution told the American Dental Association. To remedy this condition, Dr. Hrdlicka suggested the development of an institute of dental research.

Present dental research he characterized as mere "nibbling". He said that men coming to him for aid in problems of dental research seemed badly hampered by lack of time for thorough investigations, often having only a few days to devote to the problem.

The institute of dental research should be located in Washington or some similar center where medical libraries and museums are accessible. It should cooperate with investigators in other fields, such as nutrition, anatomy and anthropology, and should be connected with all sorts of other scientific laboratories. Dr. Hrdlicka also strongly advocated the establishment in this country and elsewhere of scholarships for dental research. The numerical and financial strength of the dental profession make the carrying out of these suggestions perfectly practical in Dr. Hrdlicka's opinion.

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Bad Teeth Common Ill

Dental decay or caries is the most prevalent of all human diseases, Dr. C. N. Johnson of Chicago declared in a statement to the American Dental Association. As this disease is not contagious, it does not appeal to health authorities as requiring preventive action.

People are prevented from acquiring other diseases in spite of themselves. Compulsory vaccination in many states, quarantine regulations and other measures protect the people from smallpox, cholera, yellow fever and a host of other diseases. There is no such public control of dental diseases.

"Prevention must come from the people," Dr. Johnson said. Following a diet which scientists have found assists in the development of good teeth and taking children regularly to the dentist from the age of three on are measures which will do much to prevent the development of dental decay. In the case of this disease as in others, tremendous progress could be made if our present knowledge were put into effect.

"Fight decay as if it were contagious," Dr. Johnson urged the dentists. Study of the susceptibility of mouths to decay he recommended as the most practical and tangible plan of preventive dentistry.

Science News-Letter, October 19, 1929

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**HORACE LIVERIGHT
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Paris Museum Takes Visitors to Tropics

Paris, which has long boasted the title of the most beautiful city in the world, beloved alike by artist and lady of fashion, lays claim to a new distinction. Here, in a unique new museum, lies the solution of the problem of the traveller who would like to see the Arctic without enduring the bitter cold, to see the Egyptian Sudan and central Africa without enduring the stifling heat and without risking the bites of venomous snakes or the jaws of man-eating animals. The new museum is the gift of the late Duke of Orleans.

In it is a rare collection of mounted specimens of the wild life of the regions mentioned, presented to the public exactly as they appear in real life. There are no glass cases. The animals and birds of each region occupy an enormous room, and are separated from the visitor only by a

modest railing of which he is almost completely unconscious. Down the middle of the rooms he walks, as it were, on a path through the Arctic and Africa, birds and animals on either side, grouped in life-like positions amid their native vegetation.

Here, in the central African room, stands a giraffe, biting off an interfering branch at the top of a tree, from a lower branch of which a large black snake hangs half-coiled. A monkey is characteristically searching his neighbor for fleas while a group of lions peer threateningly over the tall grass. There are several hundred specimens in this room alone. Every detail in grouping and in reproduction of natural environment has been considered to make the rooms veritable corners of life in the regions represented. Instead of the old method of stuffing with hay or

bran, the best animal sculptors were engaged to produce plaster casts over which the skins were pulled. The atmosphere of reality is further enhanced by the paintings on the walls which were done from photographs taken of the regions where the animals and birds were found.

The collection was made, not by a great naturalist, but by a great hunter of royal birth, the late Duke of Orleans, great-grandson of King Louis Philippe of France. Exiled from his native land for fear of a royalist movement, the duke spent forty years of his life in hunting expeditions in the far North and in Africa. Upon his death he bequeathed his collection to the French Natural History Museum and provided money for a new building in which to house it.

Science News-Letter, October 19, 1929

Mummies X-Rayed

Unopened mummy packs containing within their sealed wrappings the bodies of ancient inhabitants of Egypt, Peru, and North America have been looked into by the penetrating eye of the X-ray in an intensive investigation conducted by Roy L. Moodie, well-known California paleontologist.

Twenty-five Egyptian mummies, eighty Peruvian mummies, one North American burial and a dozen or more assorted sacred animals and birds have been examined and more than 300 large X-ray pictures have made, Dr. Moodie states.

The bones which stand forth in the X-ray plates show particularly diseases and injuries which killed and distressed the world's earlier inhabitants. A mummy of an Egyptian woman shows hardening of the arteries and a poker spine. Diseases of the teeth are clearly in evidence, and there is one singular case of a well-known modern ailment, impacted wisdom teeth.

Material for the investigation was furnished by the American Museum of Natural History in New York, the Field Museum of Natural History in Chicago, the University of California, and the San Diego Museum. Results of the study, now practically completed, will be published by the Field Museum.

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Roman Statue in German Ruins

A beautifully wrought bronze statue of the Roman god Mercury is the latest prize won from the ruins of a group of ancient temples in the German city of Trier on the Moselle. The image is only 21 centimeters—less than a foot—in height, but its fine modelling marks it as a genuine work of art, as well as an archaeological find of the first water.

Roman, German and Celtic gods alike were honored in Trier during imperial Roman days, from the first to the fourth century, when the city was held by the legions and was one of the most important centers of Roman power and culture north of the Alps. In the group of sixty or more temples which Dr. Siegfried Loeschke, of the Provincial Museum of Trier, has recently uncovered, there are many altars and images dedicated to the same deity under both German and Latin names.

Thus the old hammer-wielding thunder-god Thor or Donar is also called Jupiter, and curiously enough, he sometimes bears a third name as well, that of Hercules, the Roman demi-god. Similarly Mars was also worshipped under the German name of Tiu, and Mercury, always smooth-shaven in Roman temples, is here given a beard and identified with Wotan or Odin.

The pagan temples were destroyed

in the fourth century through the zeal of a powerful Christian bishop, and it has been assumed that the place stood unoccupied after that time. But Dr. Loeschke has recently discovered traces of occupancy by the Franks, the warlike German tribe that conquered Gaul and turned it into France after the legions were withdrawn by the declining Roman empire. This serves as a link between Roman and medieval Trier.

An extension of Trier's history into a remote pre-Roman past has also resulted from Dr. Loeschke's most recent work. He has found traces of an exceedingly ancient wooden structure, in the post-holes of which were many pottery fragments of Bronze Age date, but none of any later period. This marks the settlement at Trier as having been in existence as early as 1000 B. C.

Dr. Loeschke has been forced to suspend operations because of lack of funds, but he is hopeful that he will be able to raise means by private subscription to continue the work.

Science News-Letter, October 19, 1929

The United States is the only country using gas masks extensively in mines, but the mining industries of northern Europe have lately become interested in American success with carbon monoxide masks.

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FIRST GLANCES AT NEW BOOKS

SCIENCE AND THOUGHT IN THE FIFTEENTH CENTURY—Lynn Thorndike—*Columbia University Press* (\$4.75). The leading American student of medieval science again places both scientists and historians in his debt. In this volume, devoted to that fascinating but inadequately explored zone between scholasticism and the renaissance, Dr. Thorndike's painstaking objectivity results in the toning down of some big reputations, like those of Nicholas of Cusa and Regiomontanus, while to other hitherto obscure names it gives the word, "Friend, move up higher."

Science News-Letter, October 19, 1929

THE SCIENCES AND PHILOSOPHY—J. S. Haldane—*Doubleday Doran* (\$3.75). In the Gifford Lectures for 1927-28, presented here in book form, one of the greatest of living biologists undertakes the thorny task of finding a common path for physical facts and spiritual aspirations. By searching he finds God, but he negates the idea of personal immortality.

Science News-Letter, October 19, 1929

THE WONDERFUL STORY OF SCIENCE—Inez N. McFee—*Crowell* (\$2.50). A one-volume outline of science for the lay reader, well conceived and on the whole well executed. Not in the least "textbooky".

Science News-Letter, October 19, 1929

THE SCIENCE OF LIVING—Alfred Adler—*Greenberg* (\$3.50). Human strivings toward successful living arise from a desire to escape the feeling of inferiority, according to this Viennese psychologist. When these strivings are not harnessed into socially useful channels the familiar inferiority complexes and superiority complexes come into being. Playing on this theme, he stresses the importance of right relationships of the individual to the rest of the world and shows how healthy and unhealthy conditions arise.

Science News-Letter, October 19, 1929

AN HOUR ON HEALTH—Morris Fishbein—*Lippincott* (\$1). An hour's profitable reading on various aspects of health by the editor of *The Journal of the American Medical Association* and *Hygeia*.

Science News-Letter, October 19, 1929

THE SCIENCE OF PSYCHOLOGY—Raymond Holder Wheeler—*Crowell* (\$3.75). A comprehensive but compact text book, covering much modern experimentation and many valuable angles of psychology which older texts overlooked. Besides the explanation of brain and nervous system, there is an explanation of the brains of primates, animal behavior is compared with human, there is a brief reference to primitive man's development, and there is considerable space given to social behavior. Yet the bulk of the volume treats of the standard phenomena expected to appear in such a text. The very wealth of the author's material makes it seem likely that the book will be most successfully used with advanced or older students, or at any event in classes where the teacher is able and willing to amplify the pithy summaries of experiments and points of view.

Science News-Letter, October 19, 1929

THE PSYCHOLOGY OF THE INFANT—Siegfried Bernfeld—*Brentano's* (\$4). A compilation of what has been written about the first months of human life, including views of many European psychologists and also observations on child psychology among primitive tribes and other foreign peoples. These data, which have evidently been collected with much care and interest, are interpreted by the author according to his own theory of the development of instinct. The theory is Freudian in character.

Science News-Letter, October 19, 1929

THE PSYCHOLOGY OF HAPPINESS—Walter B. Pitkin—*Simon and Schuster* (\$3). Dr. Pitkin has chosen an attractive subject, and his manner of handling it is entertaining as well as enlightening. Famous personalities are analyzed for the reader's benefit, and we are introduced to a number of fictitious characters with intriguing names who illustrate other degrees of happiness and unhappiness. Dr. Pitkin has no formula for achieving a healthful and happy emotional state, but he does believe that happiness is within reach of more people today than ever before and he does give some specific advice as to how to practise the fine art of living.

Science News-Letter, October 19, 1929

CHILD CARE AND TRAINING—Marion L. Faegre and John E. Anderson—*University of Minnesota Press* (\$2). A much needed practical guide book for parents of young children. It is a little volume, but it gives useful information about diet and clothing, children's diseases, mental growth, emotional habits, eating and sleeping habits, constructive discipline, in fact, every angle of normal child life. Questions for the reader to think over are provided at the end of each chapter and there are reading lists showing where more extensive discussions of the topics may be found. The pre-school child, up to about six years, is the chief concern of the authors, but a good many of the facts and psychological principles are equally applicable in dealing with children of the primary grades.

Science News-Letter, October 19, 1929

THE ART OF RAPID READING—Walter B. Pitkin—*McGraw-Hill* (\$2.50). In this cellulose and carbon civilization, what we see with our eyes is even more important than what we hear with our ears, despite the rise of radio. The importance of rapid and accurate reading is stressed by Prof. Pitkin in this book. Through tests and advice he attempts to impart the art to others.

Science News-Letter, October 19, 1929

RARE METALS—*Fansteel Products Company* (Free). The story of tantalum, tungsten, and molybdenum, written in non-technical language, issued by the concern producing these metals.

Science News-Letter, October 19, 1929

INSECTS: THEIR STRUCTURE AND LIFE—George H. Carpenter—*Dutton* (\$3.75). A second and thoroughly revised issue of a book that has for years been a standby of entomologists. Its thoroughness and wealth of information somewhat belie the modest subtitle, "A Primer of Entomology", although the directness of presentation and the large number of pertinent illustrations will recommend the book to the beginner struggling with the difficulties of insect anatomy and physiology.

Science News-Letter, October 19, 1929

First Glances at New Books—Continued

THE SCIENCE OF LIFE—H. G. Wells, Julian Huxley and G. P. Wells—*The Amalgamated Press, Ltd.*, The Fleetway House, London, E. C. 4—Vol. 1 (\$5.20). In his recent volume "An Open Conspiracy", H. G. Wells announced his intention of putting forth his philosophy of life in systematic and final form in three volumes: the first devoted to the past, the second to the present, and the third to the future. The first volume, "The Outline of History", has had an immense sale in England and in this country. The book in hand is the first volume of the second part of this great trilogy. "The Science of Life", which is to be completed by two more volumes. It is now appearing in England in fortnightly parts sold on the newsstands for 1s. 3d. each. Owing to our copyright restrictions, it can not be sent to the United States. Eventually, of course, it will be published in this country, but probably, as was the case of Thomson's "The Outline of Science", the successor of "The Outline of History", in a belated, curtailed, inferior, and more expensive form. Meanwhile, those who are anxious to keep up with current British thought are obliged to resort to some roundabout means of booklegging. The reader will remember that Remarque's "All Quiet on the Western Front" is still not obtainable in America except in an expurgated edition.

"The Science of Life" begins with a clear and interesting explanation of the fundamental principles of physiology, heredity, and evolution in the plant and animal worlds, with special reference to the human race. It is well illustrated both with text sketches, half-tones, and ten full-page color plates. It is just the sort of book needed by the general reader to make him acquainted with the facts and opinions of modern science in regard to living creatures. It should have as wide a sale as "The Outline of History" because it is quite as important to understand the living world as it is the history of the past.

The object of H. G. Wells in writing this new book is stated as follows in the first number of the present volume:

"Mingled with orthodox physiological teaching are the doctrines of dietetic dogmatists, and the prohibitions and injunctions of religious and other regimens. Ob-

scuring the facts of heredity there are heavy accumulations of prejudice and superstition. In the care of his health and the conduct of his life, the ordinary man, therefore, draws far less confidently upon the resources of science than he might do. He is unavoidably ignorant of much that is established and reasonably suspicious of much that he hears. He seems to need the same clearing up and simplifying of the science of life that *The Outline of History* and its associates and successors have given to the story of the past. And the present work is an attempt to meet that need, to describe life, of which the reader is a part, to tell what is surely known about it, and discuss what is suggested about it, and to draw just as much practical wisdom as possible from the account."

Science News-Letter, October 19, 1929

ARTHROPODS AS INTERMEDIATE HOSTS OF HELMINTHS—M. C. Hall—*Smithsonian Misc. Coll.* Parasitic worms play a large part in promoting ill health among men and beasts; yet their often complicated life histories are in many cases imperfectly known, or when known are sometimes obscurely recorded. This brochure will therefore be of considerable service to parasitologists.

Science News-Letter, October 19, 1929

A BIOLOGY WORKBOOK—J. C. Adell, Orra O. Dunham and L. E. Welton—*Ginn* (\$1.32). A combination laboratory direction and record book for high school students in biology, gotten up in the format of a notebook.

Science News-Letter, October 19, 1929

HOME ECONOMISTS—*American Home Economics Association* (\$5). This volume of portraits and biographical sketches of 28 men and women who have been prominent in the home economics movement in the United States should appeal to the many teachers and students of the subject.

Science News-Letter, October 19, 1929

OUTLINES OF PREVENTIVE MEDICINE—By 21 Contributors—*Hoerber* (\$5). The Committee on Public Health Relations of the New York Academy of Medicine has issued this manual for physicians and medical students. The book is intended to supplement medical instruction by giving briefly the salient facts of that modern science, preventive medicine. The editors are Drs. Frederic E. Sondern, Charles Gordon Heyd and E. H. L. Corwin.

Science News-Letter, October 19, 1929

EXPERIMENTS AND OBSERVATIONS ON THE GASTRIC JUICE AND THE PHYSIOLOGY OF DIGESTION—William Beaumont—*Harvard University Press*. This volume, which is a facsimile of the original edition of 1833 and also contains Sir William Osler's essay on Beaumont, was presented to each member of the Thirteenth International Physiological Congress in commemoration of America's pioneer physiologist. It is one of the classics of physiology and medicine.

Science News-Letter, October 19, 1929

THE RESPIRATORY FUNCTION OF THE BLOOD—J. Barcroft—*Macmillan* (\$5). Two volumes of the series into which Professor Barcroft found it necessary to divide his original work for the second edition are now ready. These are *Lessons from High Altitudes* and *Hemoglobin*. The books are not for the lay reader, but will be welcomed by physiologists. A delightfully fresh style makes unusually pleasant reading of Professor Barcroft's account of his valuable investigations.

Science News-Letter, October 19, 1929

STERILIZATION FOR HUMAN BETTERMENT—E. S. Gosney and Paul Popenoe—*Macmillan* (\$2). This small volume gives the results of 6,000 operations in California during the last 20 years, together with valuable comments by the authors.

Science News-Letter, October 19, 1929

LONG AGO TOLD—Harold Bell Wright—*Appleton* (\$2.50). A collection of Papago Indian tales arranged by a well known novelist. The stories were originally told to Mrs. Will Kitt of Tucson, who has known members of the Papago tribe for thirty years. "My share of the work," Mr. Wright states, "has been to select, piece together, eliminate tiresome repetitions, harmonize confusing elements, and make clear broken sentences and obscure construction." The result is very readable, with the Indian atmosphere retained.

Science News-Letter, October 19, 1929

MINERAL RESOURCES OF THE UNITED STATES IN 1928—F. J. Katz *Govt. Printing Office* (20c). A compact and useful little block of statistical information.

Science News-Letter, October 19, 1929